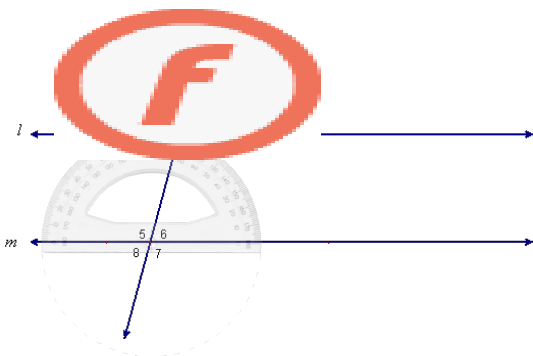


Oct 26-11:44 AM

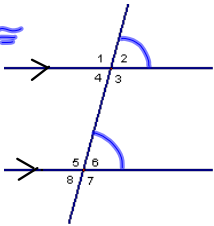


Oct 26-11:44 AM

Postulate 3.1-If 2 parallel lines are cut by a transversal, then the corresponding angles are congruent.

Abbreviated: If  $\parallel$ , corresponding  $\angle$ s are  $\cong$ .

If  $\parallel$ , corr.  $\angle$ s are  $\cong$

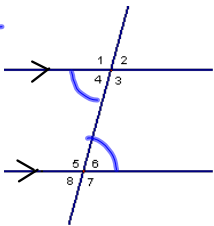


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Theorem 3.1-If 2 parallel lines are cut by a transversal, then the alternate interior angles are congruent.

Abbreviated: If  $\parallel$ , alternate interior  $\angle$ s are  $\cong$ .

If  $\parallel$ , alt int  $\angle$ s are  $\cong$



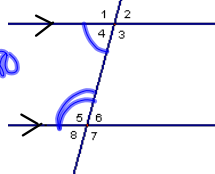
Oct 26-11:55 AM

**Theorem 3.2**-If 2 parallel lines are cut by a transversal, then the same-side (consecutive) interior angles are supplementary.  
Abbreviated: If  $\parallel$ , s-side (consecutive) interior  $\angle$ s are supplementary.

If  $\parallel$ , s-side int  $\angle$ s are suppl.

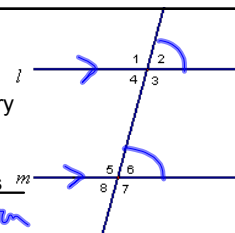
Let's prove this theorem.

$$m\angle 4 + m\angle 5 = 180$$



Given:  $l \parallel m$

Prove:  $\angle 3$  and  $\angle 6$  are supplementary



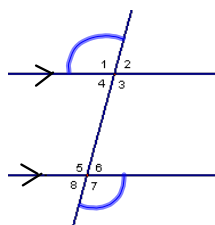
Statements	Reasons
① $l \parallel m$	① Given
② $\angle 3 + \angle 2$ are suppl.	② Suppl. thm
③ $\angle 2 \cong \angle 6$	③ If $\parallel$ , corr $\angle$ s $\cong$
④ $m\angle 3 + m\angle 2 = 180$	④ def of suppl.
⑤ $m\angle 2 = m\angle 6$	⑤ def of $\cong$
⑥ $m\angle 3 + m\angle 6 = 180$	⑥ Subst
⑦ $\angle 3 + \angle 6$ are suppl	⑦ def of suppl.

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**Theorem 3.3**-If 2 parallel lines are cut by a transversal, then the alternate exterior angles are congruent.  
Abbreviated: If  $\parallel$ , alt. ext  $\angle$ s are  $\cong$ .

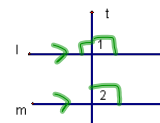
If  $\parallel$ , alt. ext  $\angle$ s are  $\cong$



**Theorem 3.4-Perpendicular Transversal Theorem**-In a plane, if a line is  $\perp$  to one of 2  $\parallel$  lines, then it is  $\perp$  to the other line.

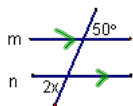
Given:  $l \parallel m$ ;  $t \perp l$   
Prove:  $m \perp t$

Statements	Reasons
1. $l \parallel m$ ; $t \perp l$	1. Given
2. $\angle 1$ is a right $\angle$	2. def of $\perp$
3. $m\angle 1 = 90$	3. Def. of right $\angle$
4. $\angle 1 \cong \angle 2$	4. If $\parallel$ , corr $\angle$ s $\cong$
5. $m\angle 2 = 90$	5. Substitution
6. $\angle 2$ is a right $\angle$	6. def of Rt $\angle$
7. $m \perp t$	7. def of $\perp$



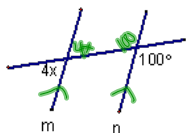
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Solve for x.  $m \parallel n$ 

$$2x = 50$$

$$x = 25$$

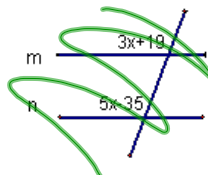


$$4x + 100 = 180$$

$$4x = 80$$

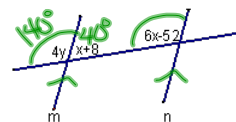
$$x = 20$$

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Solve for x and/or y.  $m \parallel n$ 

$$4y = 140$$

$$y = 35$$



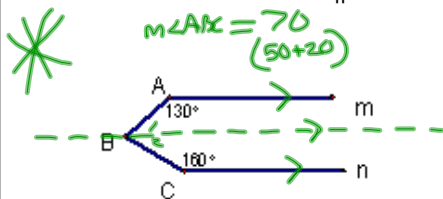
$$x + 8 + 6x - 52 = 180$$

$$7x - 44 = 180$$

$$7x = 224$$

$$x = 32$$

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Find the measure of  $\angle ABC$ .  $m \parallel n$ 

add a 3rd  $\parallel$  line

$$m\angle 1 = 50 \quad \leftarrow 180 - 130$$

$$m\angle 2 = 20 \quad \leftarrow 180 - 160$$

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Homework:  
p. 136-137  
#s 14-25, 32-36, 39

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